

REMARKS

New claim 14 has been added to more distinctly claim Applicants' invention. No new matter has been added. Support for new claim 14 can be found in the specification, e.g., on page 21, line 11.

THE REJECTION AND OBJECTION

(1) The Examiner has rejected claims 1-5 and 7-13 under 35 U.S.C. 103(a) as being unpatentable over Mori et al (USPN 6,048,831) in view of Maeda et al (USPN 5,880,234). This rejection is respectfully traversed.

The present invention relates to method for stabilizing a halogen-containing polymer comprising adding to said polymer a thermally stabilizing amount of a mixture comprising: at least one polyalkylene glycol and at least one metal salt of a strong acid selected from the group consisting of perchloric acid, trifluoroacetic acid, trifluoromethanesulfonic acid, alkylsulfuric acid, phosphotungstic acid, HPF_6 , HBF_4 , and HSbF_6 . The thermally stabilizing mixture is not added during the polymerization of the polymer but rather is added during the processing of the polymer. Thermal stabilization of PVC and other halogenated polymers is required regardless of whether the resin has been obtained by suspension polymerization, emulsion polymerization, or bulk polymerization.

Mori et al describe a low-viscosity surfactant composition useful in detergents. Mori et al do not teach or suggest a thermally stabilizing mixture of polyalkylene glycol and a metal salt for use in processing of a halogen-containing polymer.

Maeda et al describe a curable fluorine-containing copolymer wherein the copolymerization can be conducted by radical emulsion polymerization using an emulsifying agent. Maeda et al do not teach or suggest adding a thermal stabilizing mixture of polyalkylene glycol and a metal salt to the copolymer after polymerization during processing of the polymer.

The Examiner asserts that:

“It would have been obvious to one of ordinary skill in the art to employ a polyalkylene glycol-base nonionic surfactant of Mori et al in conjunction with an anionic surfactant selected from the alkylsulfuric acid salts of Mori et al in the compositions of Maeda et al to function as the emulsifying agents described therein.”

However, these emulsifying agents are added during emulsion polymerization to prepare the fluorine-containing copolymers described by Maeda et al. The mixture of monomers is emulsified in water by means of an emulsifying agent and the polymer product remains in emulsion until it is recovered. Maeda et al state (column 11, line 38): “. . . the copolymerization may be conducted by radical emulsion polymerization using an emulsifying agent. This emulsifying agent may be an anion or nonion emulsifying agent.” Accordingly, the emulsifying agent is not added to the polymer after polymerization during the processing of the polymer.

The examiner asserts, referring to the description of Mori et al:

“The invention relates to the finding that a composition containing an anionic surfactant can exhibit a low viscosity even with a high surfactant concentration, by using a polyalkylene glycol-base nonionic surfactant when combined with an anionic surfactant to thereby reduce the viscosity build-up due to the anionic surfactant.”

While reducing the viscosity build-up due to the anionic surfactant might be relevant to stabilize the emulsion during the radical emulsion polymerization, it does not apply to thermal stabilization of an already formed polymer during its processing.

The degradation of PVC and other halogenated polymers at the temperatures required during thermoplastic processing must be controlled by the use of stabilizers. Prior to the present invention, the use of polyalkylene glycols in a combination with a perchlorate or strong acid salts for the thermal stabilization of PVC or other halogenated polymers, with or without the use of other costabilizers, had not been taught or suggested. Neither Mori et al nor Maeda et al, alone or in combination, teach or suggest a thermally stabilizing mixture for polymers, comprising at least one polyalkylene glycol in combination with at least one metal salt of a strong acid.

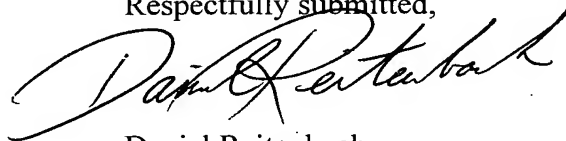
Accordingly, it is respectfully submitted that the rejection of claims 1-5 and 7-13

under 35 U.S.C. 103(a) as being unpatentable over Mori et al (USPN 6,048,831) in view of Maeda et al (USPN 5,880,234), is improper. Reconsideration of this rejection is respectfully requested.

(2) The Examiner has objected to claim 6 as being dependent upon a rejected base claim. For all the reasons recited above, this objection is respectfully traversed. Reconsideration of this objection is respectfully requested.

In light of the foregoing, reconsideration and allowance of the subject application are respectfully solicited.

Respectfully submitted,



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